

What is claimed is:

1. The device for the demonstration the violation of the momentum conservation law of the center of masses during its absolute elastic collision with the wall consists of the following:

- A. Mass  $M$ , which is formed by the lower 1 and upper 2 parts of the body, the elements 3, 5, 6-13 as well as the body itself;
- B. Small masses 4, rotating synchronously into different directions and creating the rotation inertia;
- C. Body  $M$ , which moves together with the rotating small masses 4 along the axis  $x$  and creating the translational inertia;
- D. The axis of rotation 3 of the small masses 4, fixed on the body  $M$ , moving translational, which provides the connection between the translational and rotational inertia.

2. The device of claim 1 which says that with the motion of the parts of the device the rotational inertia is transformed into translational inertia and vice versa.

3. The device of claim 2 which says that when the external force is absent both translational and rotation inertia are balanced, so. that the center of the whole system is at rest or moves linear and uniformly.

4. The device of claim 3 which says that the external force acting on the device along its axis  $x$  changes its translational inertia that violates the balance between the translational and rotation inertia, and the center of masses changes its velocity .

5. The device of claim 4 which says that when the external force stops its effect along the axis  $x$ , the rotational and translational inertia are redistributed inside the device until they balance each other , afterwards the center of masses begins to move with new constant velocity

6. The device of claim 5 which says that during the effect of the external force the new velocity of the center of the masses depends not only upon the value of the external effect, but also upon the angle of the disposition of the smaller masses relatively the axis  $x$  as well as upon the value of the angular velocity.

7. The device of claim 6 which says that during the absolute elastic collision of the device with the wall the velocity of the center of the masses changes not only its direction after the collision but also absolute value according to the formula (1)

8. The device of claim 7 which:

A. Demonstrates the violation of the momentum conservation law of the center of the masses during the absolute elastic collision.

B. Allows to produce the “inner impact”, which changes the velocity of the center of the masses of the system without external effect, by changing the angular velocity of the rotation of the small masses inside the system.

C. During the absolute elastic collision can perform the multiple collisions with the wall before the final bounce.